



Pilot-Operated Regulator Station Maintenance (Outlet Pressures > 60 psig)

Summary

This procedure provides direction for inspecting, testing, and maintaining Pacific Gas and Electric Company (Company) pilot-operated regulator stations with station outlet pressures greater than 60 pounds per square inch gauge (psig).

This procedure does not apply to district regulator stations.

Target Audience

The primary audiences for this procedure are gas transmission and distribution maintenance and construction employees, their supervisors, and local superintendents.

Safety

Improper inspection and maintenance of any gas station facility equipment could jeopardize public and employee safety.

Perform all work in compliance with Utility Standard Practice (USP) 22, "Safety and Health Program," and Code of Safe Practices.

Before Starting this Procedure

Personal Protective Equipment (PPE): Employees performing these procedures must use Company-approved PPE such as hard hats and flame-resistant (FR) traffic vests, as well as proper work attire (e.g., footwear, long-sleeved shirts, eye and face protection, and gloves), as described in the Code of Safe Practices.

Additional PPE, such as respirators or safety harnesses, may be required to perform specific tasks identified in this procedure. Employees and supervisors must identify and discuss the proper use of such equipment during tailboards before starting the work.

Employee Qualifications: Employees who perform inspections or maintenance in accordance with this procedure must be properly trained and qualified under the applicable Operator Qualification (OQ) tasks identified under the GT MSC Operator Qualification Program.

Tools, Materials, and Equipment: Use only Company-approved tools and equipment. Equipment includes but is not limited to calibrated test gauges, calibrated pressure recorders, air monitoring instruments, and leak test soap solution. Refer to the manufacturer's instructions for specialized tools required for the maintenance of unique equipment.

Procedural Steps

**I. General
Requirements
for Class A and
Class B
Inspections**

There are two categories of inspections, **Class A (Diagnostic) and Class B (Internal)**. **Class A Inspections** are "external" inspections and can usually be performed while stations are in service. **Class B Inspections** require taking regulator stations out of service and disassembling component parts for inspection.

- A. Regulator station maintenance records, diagrams, and data sheets must be taken to the station work site whenever scheduled maintenance is performed.
- B. Before beginning regulator station maintenance work, follow the clearance procedures for natural gas facilities in accordance with Work Procedure [WP4100-10, "Gas Clearance Procedures for Facilities Operating Over 60 PSIG"](#).
- C. Continuously monitor downstream system pressure during all station inspections.
- D. Before disassembling any equipment components, verify that the components are depressurized and that the spring tensions in the components are relaxed.
- E. Ensure that all test gauges have been calibrated within the past 12 months.
- F. At every stage of an inspection, correct any deviations from proper station and equipment operation. During a Class A inspection, individual components may be repaired and/or replaced without performing a complete Class B inspection.
- G. If proper operation cannot be achieved, immediately inform the supervisor.
- H. Complete the following inspection tasks and record the information on [Form TD-4540P-04-P02, "Pilot-Operated Regulator Station Maintenance Record" \(Attachment 2\)](#):
 - 1. Inspect to ensure that yards and pits are free of debris, weeds, and standing water and confirm that the ground level around the vault provides adequate drainage and is not a hazard to the general public or to Company personnel.
 - 2. Before beginning work, locate station inlet fire valves and (if present) outlet fire valves. Ensure that the valves are accessible, tagged, and operable. If the fire valves are not accessible or operable, determine whether alternate valves are available to perform this function. Note the use of alternate valves on the back of the maintenance form.

3. Before entering any pit or vault, observe the necessary precautions regarding barricading, identify sources of ignition, and check for combustible gases. (See Gas Information Bulletin 260, "Requirements for Entering Subsurface Gas Enclosures" and Utility Standard S4434, "CGT Confined Space Entry Program.")
 4. Inspect vault covers, fencing, and enclosures for proper security and safety. Confirm that the vault covers open and close properly and are not a hazard to the general public or to Company personnel.
 5. Remove water from vaults as needed. For proper liquid disposal procedures, refer to the "Field Guide for Vault Discharges" or to Environmental Services Procedure P-083, "Discharges from Vaults and Other Underground Structures."
 6. Inspect to ensure that vault structures, ladders, hooks, and related equipment are in good condition.
 7. Verify the accuracy of the station diagram and that the maximum operating pressures (MOPs), the maximum allowable operating pressures (MAOPs), and the normal positions of the station valves are shown on the diagram. Verify that all major valves and components are properly tagged, that the tag numbers match the diagram, and that Form TD-4540P-04-F01, "Pilot-Operated Regulator Station Data Sheet" (Attachment 1) is correct.
 8. Test fittings and connections for leakage with a combustible gas indicator or liquid soap.
 9. Check to ensure that ventilating ducts and openings are clear and operational.
 10. Check that relief valve stacks are clear and intact.
 11. Check that the piping and related equipment, (e.g., regulators, valves, and overpressure protection devices) are undamaged, intact, and free of external corrosion, including atmospheric corrosion.
 12. Maintain all station valves in accordance with Work Procedure WP4430-04, "Gas Valve Maintenance Requirements and Procedures". For the inlet fire valves and (if present) outlet fire valves, document the maintenance on Form F4430-04-1, "Valve Maintenance Record" (Attachment 1 of WP4430-04).
 13. Check that the filter and filter closure are in good mechanical condition.
 14. Check that required valve locking devices are present and that they operate properly.
- I. Perform Class A and Class B inspections until a station is taken out of service (all regulators and relief valves removed and the connecting pipe blind-flanged). For stations that have been taken out of service but have not been completely abandoned (i.e., deactivated per Work Procedure WP4100-11, "Deactivation and/or Retirement of Underground Gas Facilities"), other maintenance, such as leak surveys and inspections for atmospheric corrosion, is still required.

**II. Instructions for
Conducting
Inspections,
Testing, and
Maintenance**

A. Class A Inspection – Diagnostic

Operational and diagnostic testing for a Class A Inspection must follow the instructions below.

As Found Information

1. Before disassembling any equipment components, document all "as found" information, including filter differential pressure, regulator and monitor set points, and the ability of the monitor and regulator to lock-up. List this "as found" information on Form TD-4540P-04-F02, "Pilot-Operated Regulator Station Maintenance Record" (Attachment 2).

Filters

2. Check the filter/strainer drip for dirt, liquids, or other debris. Inspect the filter element or strainer basket for cause.

Note: There are acceptable and safe methods for checking the filter/strainer drip for liquids and debris. One option, depending upon the system operating conditions, could be to lower the filter/strainer pressure until a very slight opening of the filter/strainer drip valve into a container confirms the presence of liquids or debris without compromising the safe operation of the system.

3. Using an approved analog or digital differential pressure gauge, perform a filter/strainer differential pressure test and record the pressure reading. If the differential pressure is 2 pounds per square inch (psi) or greater, the filter element must be inspected and immediately changed out if necessary or the strainer basket cleaned.
 - a. If the filter/strainer differential pressure check cannot be performed because of a lack of pressure taps, the filter/strainer element must be visually inspected¹ and replaced as necessary. Record the condition of the filter/strainer element that is inspected or replaced on the back of Form TD-4540P-04-F02. If differential pressure taps do not exist, create an SAP Corrective Notification to install pressure taps in the station to allow filter/strainer differential testing. Note the SAP Corrective Notification number on the back of Form TD-4540P-04-F02.
 - b. Under flowing conditions, if the differential pressure across the filter is less than 0.5" water column (WC) (0.02 psi), visually inspect¹ the filter element and replace as necessary, since low differential pressure may indicate a collapsed or damaged filter element. Record the condition of the filter element that is inspected or replaced on the back of Form TD-4540P-04-F02.

¹ Exception: Filters with Sillers closures. Create an SAP Corrective Work Notification to replace Sillers filter units.

Pressure Regulation and Overpressure Protection Equipment Vents and Vent Lines

4. Inspect all upper diaphragm chamber and slam-shut mechanism box vents and vent lines to ensure that they are clear of debris. Remove and examine restricting devices, if installed.

Operating Tests for Regulator Runs

5. Check the regulator for proper set point and control.
 - a. Establish the set point of the regulator under flowing conditions using the long/short line technique shown in Attachment 3, "Checking for Lock-Up for Regulators and Monitors Using the Long/Short Line Technique."
 - b. If actual flow conditions cannot be achieved due to the system configuration or due to load requirements, contact the responsible engineer for input on modifying operations (e.g., changing regulator station set points) or changing the inspection schedule to achieve adequate flow.
6. Test the working and standby regulators or control valves for lock-up using the long/short line technique.

Note: Backing off the pilot is not an acceptable method of testing for lock-up.

If the station configuration is such that it prohibits performing the lock-up check, note that fact on the back of Form TD-4540P-04-F02. Discuss the documented problem with the responsible supervisor.

Create an SAP Corrective Notification to reconfigure the station to allow for a lock-up test. Note the Corrective Notification number on the back of Form TD-4540P-04-F02.

Overpressure Protection Devices

7. Check the overpressure protection system.

Note: See CGT Standard 4126.2, "Establishing Setpoints on Overpressure Protection Devices." for pressure-setting requirements.

 - a. Using the long/short line technique shown in Attachment 3, check monitor regulators or control valves for proper set point and control by causing the monitor regulators or control valves to operate and take over pressure control at the set point under actual flow conditions. The pressure at which monitor regulators or control valves operate and take over pressure control must not exceed the MAOP plus the allowable limit. Test the monitor for lock-up as described in Step 11.A.6.
 - b. Test mechanical relief valves for the ability to operate at the overpressure set point. If changes have been made to the equipment or relief valve settings, another relief valve analysis is required. Notify the responsible engineer, who will then perform the analysis.

When testing a pilot-operated relief valve, be sure to check the main relief valve cracking pressure (as opposed to the pilot's bleeding pressure point).

- c. Test automatic shutoff valves for the ability to operate at both the over pressure and the under pressure set points, as applicable.
 - d. The monitor regulator must be the upstream device. If the monitor regulator is not the upstream device, the station must be reconfigured during the current maintenance. If, for operating reasons, reconfiguration is not possible, obtain written documentation allowing an exception for a downstream monitor and ensure that it is filed in the regulator station's maintenance folder. The exception must be granted by the responsible engineer.
8. Repeat steps 5 through 7 for additional regulator runs at the station.

Valve Positions and Equipment Settings

9. At the completion of every inspection, make certain that all valves are returned to their proper operating positions and that all station equipment is returned to normal operation.
10. At the end of an inspection for dual run stations, switch the working and the standby regulator runs. If, for operating reasons, it is not possible to switch the runs, obtain written documentation allowing an exception for switching the runs and ensure that it is filed in the regulator station maintenance folder. The exception must be granted by the responsible engineer.

Pressure Recording

11. At the end of maintenance work, perform pressure recordings as described in Section B.C, "Pressure Recordings"

B. Class B Inspection – Internal

A Class B Inspection requires taking the regulator station out of service and disassembling its component parts for inspection. Perform a Class B Inspection as follows:

As Found Information

1. Before disassembling or adjusting any equipment components, document all "as found" information, including filter/strainer differential pressure, regulator and monitor pressure settings, and the ability of the monitor and regulator to lock-up. List this "as found" information on Form TD-4540P-04-F02, "Pilot-Operated Regulator Station Maintenance Record" (Attachment 2).
2. Before disassembling any equipment components, verify that the components are depressurized and that the spring tensions in the components are relaxed.

Filters

3. When performing a scheduled **Class B inspection**, inspect¹ and **replace the filter element or clean the strainer basket**. Measure the "as left" filter/strainer differential pressure, and record the condition of the filter element that is replaced or the "as found" condition of the strainer. If a specific filter element is not available, contact the responsible engineer for assistance.
4. If the station configuration prohibits performing the filter/strainer differential pressure check because of a lack of pressure taps, record that fact on the back of Form TD-4540P-04-F02. If differential pressure taps do not exist, create an SAP Corrective Notification to install pressure taps in the station to allow filter/strainer differential testing. Note the SAP Corrective Notification number on the back of Form TD-4540P-04-F02 and discuss this documentation with the appropriate supervisor.
 - a. Action must be taken to install pressure taps in the station to allow for differential pressure testing.
 - b. Contact the responsible engineer for an engineering evaluation of the next steps to be taken to install pressure taps.

Pilot-Operated Regulators, Monitors, and Relief Valves²

5. Disassemble and inspect the equipment in accordance with the manufacturer's guidelines. For plug or ball valve assemblies, refer to work procedure WP4430-01, "Gas Valve Maintenance Requirements and Procedures," for lubrication requirements.
 - a. If sulfur is present, notify the senior gas quality engineer in gas engineering and note it on the back of Form TD-4540P-04-F02.
 - b. Replace the regulator diaphragms, O-ring seals, and gaskets.
 - c. After reassembly, soap test before conducting the operating tests.
 - d. It is not necessary to disassemble automatic shutoff devices unless they do not maintain a consistent shutoff pressure.

¹ Exception: Filters with Sillers closures. Create an SAP Corrective Work Notification to replace Sillers filter units.

² Relief valves and relief valve pilots need not be disassembled, except under the following conditions: 1) they do not operate properly when tested, 2) the Class "B" inspection is being performed due to the 1 year after installation requirement, or 3) the Class "B" inspection is being performed due to cutting and welding between the filter and relief valve.

Pilot Systems on Regulators, Monitors, and Relief Valves²

6. Disassemble and inspect the equipment in accordance with the manufacturer's guidelines. Perform the following work on the pilot system:
 - a. If sulfur is present, notify the senior gas quality engineer in gas engineering and note it on the back of Form TD-4540P-04-F02.
 - b. Inspect the pilot filters, strainers, and dehydrators (if installed).
 - c. Clean or replace screens, elements, or filters. Clean the dehydrator and replace the desiccant.
 - d. Inspect the pilot orifice for scoring or wear and replace as needed.
 - e. Replace the pilot diaphragms, gaskets, O-rings, and seat.
 - f. Disconnect, inspect, and clear loading, supply, vent, sensing, and bleed lines.
 - g. Remove restricting devices on the pilot control loop, examine or test for obstructions or foreign matter, and replace all O-rings.
 - h. After reassembly, soap test for leaks before conducting any operating tests.
 - i. Test the pilot for mechanical operation including freedom of movement in the linkage.

Non Pilot-Operated Regulators, Monitors, and Relief Valves²

Note: Some pilot-operated stations may have spring loaded monitors. For such cases, follow the instructions in Step 7 below.

7. For non pilot-operated regulators, disassemble and inspect the equipment in accordance with the manufacturer's guidelines.
 - a. If sulfur is present, notify the senior gas quality engineer in gas engineering and note it on the back of the Form TD-4540P-04-F02.
 - b. Replace the diaphragms, all O-rings seals, gaskets, and seats.
 - c. Inspect orifices for scoring or wear and replace as needed.
 - d. After reassembly, soap test before conducting the operating tests.

Pressure Regulation and Overpressure Protection Equipment Vents and Vent Lines

8. Inspect all upper diaphragm chamber and slam-shut mechanism box vents and vent lines to ensure that they are clear of debris. Remove and examine restricting devices, if installed.

²Relief valves and relief valve pilots need not be disassembled, except under the following conditions: 1) they do not operate properly when tested, 2) the Class "B" inspection is being performed due to the 1 year after installation requirement, or 3) the Class "B" inspection is being performed due to cutting and welding between the filter and relief valve.

Operating Tests for Regulator Runs

9. Check the regulator for proper set point and control.
 - a. Establish the set point of the regulator under flowing conditions using the long/short line technique shown in Attachment 3, "Checklist for Lock-Up for Regulators and Monitors Using the Long/Short Line Technique."
 - b. If actual flow conditions cannot be achieved due to the system configuration or due to load requirements, contact the responsible engineer for input on modifying operations (e.g., changing regulator station set points) or changing the inspection schedule to achieve adequate flow.
10. Test the working and standby regulators or control valves for lock-up using the long/short line technique.

Note: Backing off the pilot is not an acceptable method of testing for lock-up.

If the station configuration prohibits performing the lock-up check, note that fact on the back of Form TD-4540P-04-F02. Discuss the documented problem with the responsible supervisor. Create an SAP Corrective Notification to reconfigure the station to allow for a lock-up test. Note the Corrective Notification number on the back of Form TD-4540P-04-F02.

Overpressure Protection Devices

11. Check the overpressure protection systems.

Note: See CGT Standard 4125.2, "Establishing Setpoints on Overpressure Protection Devices," for pressure-setting requirements.

- a. Using the long/short line technique shown in Attachment 3, check monitor regulators for proper set point and control by causing the monitor regulators to operate and take over pressure control at the set point under actual flow conditions. The pressure at which monitor regulators operate and take over pressure control must not exceed the MAOP plus the allowable limit. Test the monitor for lock-up as described in Step 11.5.10.
- b. Test mechanical relief valves for the ability to operate at the overpressure set point. If changes have been made to the equipment or relief valve settings, another relief valve analysis is required. Notify the responsible engineer, who will then perform the analysis.

When testing a pilot-operated relief valve, be sure to check the main relief valve cracking pressure (as opposed to the pilot's bleeding pressure point).

- c. Test automatic shutoff valves for the ability to operate at both the over pressure and the under pressure set points, as applicable.

- d. The monitor regulator must be the upstream device. If the monitor regulator is not the upstream device, the station must be reconfigured during the current maintenance. If, for operating reasons, reconfiguration is not possible, obtain written documentation allowing an exception for a downstream monitor and ensure that it is filed in the regulator station maintenance folder. The exception must be granted by the responsible engineer.
12. Repeat steps 9 through 11 for additional regulator runs at the station.

Valve Positions and Equipment Settings

13. At the completion of every inspection, make certain that all valves are returned to their proper operating positions and that all station equipment is returned to normal operation.
14. At the end of an inspection for dual run stations, switch the working and the standby regulator runs. If, for operating reasons, it is not possible to switch the runs, obtain written documentation allowing an exception for switching the runs and ensure that it is filed in the regulator station maintenance folder. The exception must be granted by the responsible engineer.

C. Pressure Recordings

At the end of maintenance work, perform pressure recordings as described below.

Recording Station Performance

1. At the end of Class A and Class B inspections, start pressure recordings after the regulator runs are returned to operation and before the crew leaves the job site.

Pressure Recorder Accuracy Verification and Calibration

2. Accuracy tolerances for mechanical pressure recorders are $\pm 1.0\%$ of full scale for each 2-point check and $\pm 0.5\%$ of full scale for each 3-point calibration. Accuracy tolerance for electronic pressure recorders is $\pm 0.5\%$ of full scale for both accuracy verifications and calibrations.
 - a. For regulator stations with a permanent mechanical recorder, annually perform a two-point check of the recorder (zero and operating pressure) using a calibrated test gauge when performing each Class A inspection. Note the serial number and the calibration date of the test gauge on the pressure chart.

At the time of any new installation, perform a 3-point recorder calibration (zero, 50% of the recorder element range, and 100% of the recorder element range). Also perform a 3-point calibration at each Class B inspection or whenever a 2-point check indicates that a calibration is necessary. Note the serial number and the calibration date of the test gauge on the pressure chart.

- b. For regulator stations with a **permanent electronic recorder**, ensure that the permanent electronic recorder has been calibrated within the past 12 months. Note the serial number and the calibration date of the test equipment in the regulator station maintenance file.
- c. For locations with a **portable mechanical recorder**, perform a 2-point check (zero and operating pressure) with a calibrated test gauge at the beginning of the recording. Ensure that the portable mechanical recorder has been calibrated within the past 12 months. Note the recorder's calibration date on the pressure chart.
- d. For locations with a **portable electronic recorder**, perform a 2-point check (zero and operating pressure) with a calibrated test gauge at the beginning of the recording. Ensure that the portable electronic recorder has been calibrated within the past 12 months. Note the serial number and the calibration date of the test gauge in the regulator station maintenance file.

Creating a Pressure Record

3. For **mechanical recorders**, record a pressure chart and include a zero check at the start and at the finish of the recording when the chart is picked up. Start the chart when the maintenance work is completed and before the crew leaves the job site. The recording period must be a minimum of 16 hours but may be extended up to a maximum of 120 hours.

Note: Recording a pressure chart for more than one chart revolution is discouraged. If an overwritten chart recording has less than 16 hours of non-overwritten data, the chart must be redone.

At the end of the recording period, retrieve and review the chart and provide it to the supervisor for signature. The chart must be filed in the regulator station file folder.

4. For **electronic recorders**, start the recording when the maintenance work is completed and before the crew leaves the job site. The recording period must be a minimum of 16 hours but may be extended up to a maximum of 120 hours. At the completion of the recording period, download, print, graph, and review the pressure data and ensure that it is filed in the regulator station file folder. When graphing the data, the vertical scale must not exceed two times the highest-value data point on the chart.
5. Each pressure chart must be retrieved at the completion of the chart recording period and filed in the regulator station file folder.
 - a. For regulator stations using a permanent or portable electronic recorder, the recorder data must be downloaded, printed out, and maintained in the regulator station file folder.
6. The location, date, chart-on time, chart-off time, and reason for the test must be logged for all recordings. The chart must be initialed by the person performing the test.

III. Records

- A. Prepare Form TD-4540P-04-F01, "Pilot-Operated Regulator Station Data Sheet" (Attachment 1) for each stage of regulation. The data sheet must be reviewed during every inspection and updated as needed. Data sheets must be filed in the regulator station maintenance folder.
- B. Document inspection, testing, and preventive maintenance work on Form TD-4540P-04-F02, "Pilot-Operated Regulator Station Maintenance Record" (Attachment 2).

Note: Do not leave any field on either of these forms blank. Clearly indicate any field for which there is no data with a dash (-), a slash (/), "N/A" or "N.A."

- C. The lead qualified mechanic on the crew and the supervisor must sign and date all maintenance records, including pressure recordings, with their printed LAN IDs and initials. All entries and signatures must be made with non-erasable ink. Maintenance records must be filed in the regulator station's file folder.
- D. Retain all regulator station data sheets, maintenance records, pressure recordings, permanent pressure recorder calibration records, and relief valve capacity checks for 10 years or for the life of the facility, whichever is less.
- E. On the back of Form TD-4540P-04-F02, show any corrective work that was done. This corrective work may include the following:
1. Any regulator, monitor, or relief valve set point changes. Specify the reasons for the changes.
 2. Replacement of failed parts. Specify the reason for the replacement.
 3. Component replacement (e.g., replaced filters, regulators, pilots, or valves). Specify the reason for the replacement.
 4. Leak and/or equipment repairs. Provide a brief description of repairs.
 5. Miscellaneous work such as touch-up painting, filter blowdowns, or cleanouts.
 6. Valve flushed or other corrective maintenance.

Note: Form TD-4540P-04-F01 must also be updated, as applicable, to reflect any of the corrective work that is listed above.

- F. On the back of Form TD-4540P-04-F02, note the reasons for any maintenance record items whose results are "no," "poor," or "fail" on the front of the form. Also, discuss all outstanding and/or planned corrective maintenance work to be performed in the future with the supervisor and record the SAP Corrective Work Notification number.

- G. Pressure-recording charts used in regulator pressure tests must include notations for the regulator location, the chart on time, the chart off time, and the serial number and calibration date of the test gauge used for the recorder's accuracy check.
- H. Electronic recorder pressure graphs used in regulator pressure tests must include notations for the regulator location, the chart on time, and the chart off time.
- I. Retain a copy of the water discharge forms in the local office files.
- J. Retain a copy of the confined space air monitoring forms in the local office files.
- K. For failed or problem equipment, fill out an online Material Problem Report as required by Utility Standard S2333, Material Problem Reporting (MPR).

**IV. Compliance
and Control**

- A. Supervisors are responsible for the proper completion of all regulator station inspection, testing, and maintenance for their areas of work responsibility.
- B. Supervisors must review and approve all records for work performed at each regulator station within 30 days of the completion of maintenance.

**Implementation
Responsibilities**

Maintenance and construction (M&C) superintendents are responsible for ensuring that gas regulator stations are inspected, tested, and maintained in accordance with this procedure.

**Governing
Authority**

Until such time as Utility Standard S4540, "Gas Pressure Regulation Requirements," is updated to include the maintenance requirements for Class A and Class B inspections at regulator stations whose outlet pressures exceed 60 psig, this document will be governed under the requirements of Utility Procedure TD-4530P-02, "Gas Transmission Stations Inspection, Testing, and Maintenance Procedures."

**Reference
Documents**

CFR Title 49, Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards," Subpart M, "Maintenance"
CFR 49, 192, 157, "Compressor stations: Emergency shutdown."
CFR 49, 192, 736, "Compressor stations: Gas detection."
CGI Clearance Manual

CGI Safety Form 11, "Gas System Maintenance & Technical Support Incident Report"

Code of Safe Practices

Company Form 82-0113, "Material Problem Report"

CPUC General Order No. 112-E, "State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems"

Engineering Drawing #163218, "CGT Overpressure Protection Device Settings"

Gas Numbered Document H-70, "Pressure Relief Devices"

Gas Numbered Document O-16, "Corrosion Control of Gas Facilities"

Gas Transmission Maintenance Roadmap

Utility Standards:

4125.2, "Establishing Setpoints On Overpressure Protection Devices"

A271, "Gas Saver Circuitry for Pneumatic Valve Actuators"

D-80456, "Recording Pressures in Distribution Systems"

S2336, "Material Problem Reporting (MPRI)"

S4050, "Security Measures for Gas Transmission Facilities"

S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities"

S4302, "Gas Measurement Requirements"

S4305, "Gas Transmission Measurement Quality Assurance"

S4380, "Odorization of Natural Gas"

S4414, "CGT Confined Space Entry Program"

S4431, "Operation and Maintenance Instructions Requirements for Major Gas Facilities"

S4433, "Gas Pressure Relief Devices – Responsibility for Annual Inspection and Verification of Capacity"

S4446, "Vault Inspection Procedure"

S4540, "Gas Pressure Regulation Maintenance Requirements"

Utility Standard Practice (USP) 22, "Safety and Health Program"

Utility Work Procedures:

TD-4430P-02, "Gas Transmission Stations Inspection, Testing, and Maintenance Procedures"

WP4060-01, "Entry, Inspections, Response to Threats, and Security Maintenance Requirements for Gas Transmission Facilities"

WP4050-02. "Obtaining and Controlling Access to Gas Transmission Facilities"

WP4100-10. "Gas Clearance Procedures For Facilities Operating Over 60 PSIG"

WP4100-11. "Deactivation and/or Retirement of Underground Gas Facilities"

WP4300-17. "Gas Chromatographs – Calibration Gas"

WP4330-02. "Removal and Control of Liquids from Pipelines and Maintenance and Operation of Associated Gas Conditioning Equipment"

WP4430-04. "Gas Valve Maintenance Requirements and Procedures"

Attachments

Attachment 1. Form TD-4540P-04-F01. "Pilot-Operated Regulator Station Data Sheet"

Attachment 2. Form TD-4540P-04-F02. "Pilot-Operated Regulator Station Maintenance Record"

Attachment 3. "Checking for Lock-Up for Regulators and Monitors Using the Long/Short Line Technique."

Document Revision This is a new document.

Definitions **Annually:** At intervals not exceeding 15 months to the date, but at least once each calendar year.

Approved By [Redacted]
Manager

Document Owner [Redacted]
Company phone [Redacted]